



Billing Code 4333–15

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FF09E21000 FXES11110900000 201]

Endangered and Threatened Wildlife and Plants; Four Species Not Warranted for Listing as Endangered or Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notification of findings.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce findings that four species are not warranted for listing as endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). After a thorough review of the best available scientific and commercial information, we find that it is not warranted at this time to list the Upper Missouri River DPS of Arctic grayling, Elk River crayfish, rattlesnake-master borer moth, and northern Virginia well amphipod. However, we ask the public to submit to us at any time any new information relevant to the status of any of the species mentioned above or their habitats.

DATES: The findings in this document were made on [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Detailed descriptions of the bases for these findings are available on the Internet at <http://www.regulations.gov> under the following docket numbers:

Species	Docket Number
Arctic grayling	FWS–R6–ES–2020–0024
Elk River crayfish	FWS–R5–ES–2020–0025
Northern Virginia well amphipod	FWS–R5–ES–2020–0026

Rattlesnake-master borer moth	FWS–R3–ES–2020–0027
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Supporting information used to prepare this finding is available for public inspection, by appointment, during normal business hours by contacting the appropriate person as specified under **FOR FURTHER INFORMATION CONTACT**. Please submit any new information, materials, comments, or questions concerning this finding to the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**.

FOR FURTHER INFORMATION CONTACT:

Species	Contact Information
Arctic grayling	Jodi Bush, Project Leader, Montana Field Office, 406 449-5225 x205, Jodi_Bush@fws.gov
Elk River crayfish and northern Virginia well amphipod	Martin Miller, Threatened and Endangered Species Chief, North Atlantic-Appalachian Regional Office, 413-253-8615, Martin_Miller@fws.gov
Rattlesnake-master borer moth	Kraig McPeck, Field Supervisor, Illinois-Iowa Field Office, 309-757-5800, kraig_mcpeek@fws.gov

If you use a telecommunications device for the deaf (TDD), please call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Background

Under section 4(b)(3)(B) of the Act (16 U.S.C. 1531 *et seq.*), we are required to make a finding whether or not a petitioned action is warranted within 12 months after receiving any petition for which we have determined contains substantial scientific or commercial information indicating that the petitioned action may be warranted (“12-month finding”). We must make a finding that the petitioned action is: (1) Not warranted; (2) warranted; or (3) warranted but precluded. We must publish a notice of these 12-

month findings in the *Federal Register*.

Summary of Information Pertaining to the Five Factors

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations at part 424 of title 50 of the Code of Federal Regulations (50 CFR part 424) set forth procedures for adding species to, removing species from, or reclassifying species on the Lists of Endangered and Threatened Wildlife and Plants (Lists). The Act defines “species” as any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. The Act defines “endangered species” as any species that is in danger of extinction throughout all or a significant portion of its range (16 U.S.C. 1532(6)), and “threatened species” as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)). Under section 4(a)(1) of the Act, a species may be determined to be an endangered species or a threatened species because of any of the following five factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species’ continued existence. In evaluating these

actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term “threat” to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term “threat” includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term “threat” may encompass—either together or separately—the source of the action or condition or the action or condition itself. However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an “endangered species” or a “threatened species.” In determining whether a species meets either definition, we must evaluate all identified threats by considering the expected response by the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an “endangered species” or a “threatened species” only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term “foreseeable future,” which appears in the

statutory definition of “threatened species.” Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term “foreseeable future” extends only so far into the future as the Service can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species’ likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species’ biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

In considering whether a species may meet the definition of an endangered species or a threatened species because of any of the five factors, we must look beyond the mere exposure of the species to the stressor to determine whether the species responds to the stressor in a way that causes actual impacts to the species. If there is exposure to a stressor, but no response, or only a positive response, that stressor does not cause a species to meet the definition of an endangered species or a threatened species. If there is exposure and the species responds negatively, we determine whether that stressor drives or contributes to the risk of extinction of the species such that the species warrants listing

as an endangered or threatened species. The mere identification of stressors that could affect a species negatively is not sufficient to compel a finding that listing is or remains warranted. For a species to be listed or remain listed, we require evidence that these stressors are operative threats to the species and its habitat, either singly or in combination, to the point that the species meets the definition of an endangered or a threatened species under the Act.

In conducting our evaluation of the five factors provided in section 4(a)(1) of the Act to determine whether the Upper Missouri River DPS of Arctic grayling (*Thymallus arcticus*), Elk River crayfish (*Cambarus elkensis*), rattlesnake-master borer moth (*Papaipema eryngii*), and northern Virginia well amphipod (*Stygobromus phreaticus*) meet the definition of “endangered species” or “threatened species,” we considered and thoroughly evaluated the best scientific and commercial information available regarding the past, present, and future stressors and threats. We reviewed the petitions, information available in our files, and other available published and unpublished information. Our evaluation may include information from recognized experts; Federal, State, and tribal governments; academic institutions; foreign governments; private entities; and other members of the public.

The species assessment forms for the Upper Missouri River DPS of Arctic grayling, Elk River crayfish, rattlesnake-master borer moth, and northern Virginia well amphipod contain more detailed biological information, a thorough analysis of the listing factors, and an explanation of why we determined that these species do not meet the definition of an endangered species or a threatened species. This supporting information can be found on the Internet at *HYPERLINK "http://www.regulations.gov"*

<http://www.regulations.gov> under the appropriate docket number (see **ADDRESSES**, above). The following are informational summaries for the findings in this document.

Upper Missouri River DPS of Arctic Grayling

Previous Federal Actions

We have published a number of documents on Arctic grayling since 1982, and have been involved in litigation over previous findings. We describe the most recent previous federal actions that are relevant to this finding below.

On October 9, 1991, the Biodiversity Legal Foundation and George Wuerthner petitioned us to list the fluvial (riverine) populations of Arctic grayling in the Upper Missouri River basin as an endangered species throughout the historical range in the coterminous United States. We subsequently published several 90-day and 12-month findings on that petition (58 FR 4975, January 19, 1993; 59 FR 37738, July 25, 1994; 72 FR 20305, April 24, 2007; 75 FR 54708, September 8, 2010), some of which were challenged in court.

On August 20, 2014, we published a revised 12-month finding on the petition to list the Upper Missouri River DPS of Arctic grayling (79 FR 49384), fulfilling our commitments under the multi-district litigation (MDL) case (Endangered Species Act Section 4 Deadline Litig., Misc. Action No. 10–377 (EGS), MDL Docket No. 2165 (D. DC)). In the August 20, 2014, finding, we determined that listing the DPS was not warranted, and we removed the DPS from the candidate list. We concluded that habitat-related threats previously identified, including habitat fragmentation, dewatering, thermal stress, entrainment, riparian habitat loss, and effects from climate change, had been sufficiently ameliorated and that 19 of 20 populations of Arctic grayling were either

stable or increasing.

On February 5, 2015, the Center for Biological Diversity (CBD), Western Watersheds Project, and two individuals filed a complaint against the Department of the Interior (DOI) and the Service challenging our August 20, 2014, revised 12-month finding that the Upper Missouri River DPS of Arctic grayling did not warrant listing as a threatened species or endangered species (*Center for Biological Diversity v. Jewell*, No. 2:15-cv-00004-SEH (D. Mont. 2016)). Plaintiffs also brought a facial challenge to the Service's Final Policy on Significant Portion of its Range (SPR Policy; 79 FR 37578, July 1, 2014), arguing that the SPR Policy was contrary to case law in defining a species' range to only include current range and not historical range. The district court found for the government on all claims, and the plaintiffs appealed.

On August 17, 2018, the Court of Appeals affirmed in part and reversed in part (*Center for Biological Diversity v. Zinke*, No. 16-35866, 900 F. 3d 1053 (9th Cir. 2018)). The court agreed with the district court that we permissibly defined "range" as current range in the SPR Policy. However, that court found that we erred in the listing finding in four ways: (1) We should not have concluded that the Big Hole River grayling population was increasing when available biological information showed that the population was declining; (2) we should not have relied on cold water refugia in the Big Hole River, because we did not adequately address information showing that river will experience low stream flows and high water temperatures; (3) we did not adequately explain why the uncertainty presented by climate change with regard to low stream flows and higher water temperatures did not weigh in favor of listing the grayling; and (4) we arbitrarily relied on the Ruby River grayling population to provide redundancy for the grayling

outside of the Big Hole River. The court upheld the finding in all other respects, including our analysis of cold water refugia other than in the Big Hole River, and our conclusion that small population size did not pose a risk to genetic viability of the grayling.

The court vacated the finding and remanded it to us to reconsider in light of the court's opinion, and ordered that we make one of the findings set forth in 16 U.S.C. 1533(b)(3)(B)(i) through (iii) for the Upper Missouri River DPS. Further, the court required that we submit such finding to the Office of the Federal Register no later than July 1, 2020. This constitutes our revised finding.

Summary of Finding

The Arctic grayling is a fish belonging to the family Salmonidae (salmon, trout, charr, whitefishes), subfamily Thymallinae (graylings), and it is represented by a single genus, *Thymallus*. Arctic grayling are native to Arctic Ocean drainages of Alaska and northwestern Canada, as far east as Hudson's Bay, and westward across northern Eurasia to the Ural Mountains. This finding pertains to Arctic grayling in the Upper Missouri River basin in Montana and Wyoming, which we have determined are discrete (due to marked separation from other native populations) and significant (they occur in a unique ecological setting, are separated from other Arctic grayling populations by a large gap in their range, and differ markedly in their genetic characteristics relative to other Arctic grayling populations), and therefore qualify as a DPS under the Act; for a more detailed discussion of our DPS analysis, please refer to our August 20, 2014, 12-month finding (79 FR 49392–49396).

Arctic grayling occupy a variety of habitats including small streams, large rivers,

lakes, and bogs (Northcote 1995, pp. 152–153; Scott and Crossman 1998, p. 303), and have defined thermal tolerances. Arctic grayling of all ages feed primarily on aquatic and terrestrial invertebrates captured on or near the water surface, but also will feed opportunistically on fish and fish eggs (Northcote 1995, pp. 153–154; Behnke 2002, p. 328). Arctic grayling in the Upper Missouri River basin exhibit a spectrum of life histories. Some Arctic grayling spend their entire lives in flowing water (often referred to as fluvial), some primarily reside in lakes and only use flowing water for spawning (often referred to as adfluvial), and others appear to use some combination of both strategies.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Upper Missouri River DPS of Arctic grayling, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. We evaluated stressors potentially affecting the DPS's biological status, including curtailment of range and distribution, dams on mainstem rivers, water management in the Upper Missouri River basin, habitat fragmentation/smaller seasonal barriers, degradation of riparian habitat, dewatering from irrigation and increased water temperatures, entrainment, sedimentation, overwinter conditions, climate change, recreational angling, scientific/population monitoring, disease, predation by and competition with nonnative trout, predation by birds and mammals, drought, stochastic threats, genetic diversity and small population size, and cumulative effects from climate change interacting with other factors.

Overall, we found that the potential threats we evaluated are having minimal

impacts in most populations within the DPS. Fifteen out of the 19 populations occur in high-elevation lakes primarily on high-quality habitats on Federal land, are considered stable, and have minimal to no impacts from stressors. The other four populations have a fluvial component, and of these, the Big Hole River represents 60 percent of the total riverine miles within the DPS. Within the Big Hole River, many years of management, including 13 years of implementation of the Big Hole candidate conservation agreement with assurances (CCAA), have addressed many past threats, and resulted in both improvements in habitat conditions and increases in the number of effective breeders as concluded from recent monitoring. All demographic and genetic studies of Big Hole River Arctic grayling are consistent and clearly show a historical decline (1980s – 2006) in Arctic grayling due to a multitude of habitat-related threats. Since 2006, those threats have been strategically and systematically addressed or minimized and as a result of improvements to habitat and other conservation actions (increased streamflows, increased riparian habitat health, decreased water temperatures, increased connectivity and access to thermal refugia), the number of effective breeders in the Big Hole River has increased significantly by 111 percent, on average, and genetic diversity is high and stable.. Therefore, there is currently a high level of resilience in most populations within the DPS.

The fact that the species still occupies 7 out of 10 historical watersheds, and is spread across 19 populations, provides a high level of redundancy in the case of a catastrophic event. There is also a high level of within-system redundancy in the Big Hole River, which includes 199 river miles of both mainstem and tributary habitat for the Arctic grayling, such that no single catastrophic event would be expected to impact the

entire Big Hole River population. Further, the other three primarily fluvial systems provide additional redundancy, including the Ruby River population which met the criteria for a viable population in the Montana Fluvial Arctic Grayling Restoration Plan and objectives in the Upper Ruby River Fluvial Arctic Grayling Reintroduction Plan. The presence of populations from the full spectrum of life histories, as well as the presence of moderate to high levels of genetic diversity within many populations, provides representation.

We also considered the viability of the DPS into the foreseeable future. Despite projected increases in temperature and frequency of drought, 15 out of 19 populations in the DPS are currently in lake habitats that will likely not be affected significantly by climate change due to their high elevation, intact riparian areas, and cool inputs of tributary water. Riparian restoration, particularly in the Big Hole River, has been empirically shown to minimize the effects of increasing water temperatures due to climate change. Since 2006, multiple projects have been implemented to decrease dewatering and thermal stress and have resulted in increased streamflows, increased access to cold-water refugia, and marked temperature reductions. These improvements mitigate warming water temperatures due to climate change, and the CCAA projects have led to shorter durations of stressful water temperatures. In the future, we do not expect habitat to decline in the Big Hole River because of the proven track record of CCAA projects. With respect to nonnative fish, we expect that impacts to Arctic grayling populations will be low, as nonnatives have co-existed with some lake populations for many decades. Given the lack of stressors that are projected to occur in the future, as well as the projected continued resilience of most populations within the DPS, we expect

that levels of redundancy and representation will also be maintained into the future.

We also identified two potential portions of the range to see if they warranted further consideration as potential significant portions of the range; these are (1) the Madison River and (2) a group including the four populations with a fluvial component. However, as explained in our full revised 12-month finding (available on <http://www.regulations.gov> under Docket No. FWS–R6–ES–2020–0024), we found that neither of these portions is both significant and in danger of extinction or likely to become so in the foreseeable future, and therefore neither warrants further consideration as a significant portion of the range.

Therefore, we find that listing the Upper Missouri River DPS of Arctic grayling as an endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in our full revised 12-month finding (available on <http://www.regulations.gov> under Docket No. FWS–R6–ES–2020–0024).

Elk River Crayfish

Previous Federal Actions

On April 20, 2010, we received a petition from the Center for Biological Diversity, Alabama Rivers Alliance, Clinch Coalition, Dogwood Alliance, Gulf Restoration Network, Tennessee Forests Council, and West Virginia Highlands Conservancy to list 404 aquatic, riparian, and wetland species, including the Elk River crayfish, as endangered or threatened species under the Act. On September 27, 2011, we published a 90-day finding in the *Federal Register* (76 FR 59836), concluding that the petition presented substantial information indicating that listing the Elk River crayfish may be warranted. This notice constitutes the 12-month finding on the April 20, 2010,

petition to list the Elk River crayfish under the Act.

Summary of Finding

The palm-sized Elk River crayfish is found in the upper and middle sections of West Virginia's Elk River main stem and/or tributaries, including these Hydrologic Unit Code (HUC) 10 watersheds: Upper Elk River, Holly River, Middle Elk River, Laurel Creek, Birch River, and Lower Elk River in Pocahontas, Randolph, Webster, Braxton, Nicholas, and Clay Counties. The best available data suggest that the species' range has not changed significantly.

The Elk River crayfish has four life stages: egg; hatchling that is dependent upon the female; juvenile which undergoes a series of four to five molts allowing it to grow and its shell to harden; and adult that becomes reproductive in 2.5 to 3 years, has one reproductive event per year once mature, and may live up to 5 years. Molting is a vulnerable life stage for crayfish because, during molting, crayfish are soft and unable to move effectively, making them susceptible to predation, as well as being more sensitive to contaminants and water-quality degradation. The species is assumed to be an opportunistic omnivore feeding on a wide variety of items, including aquatic and terrestrial vegetation, plant detritus, insects, snails, and small aquatic vertebrates. Habitat elements that are important to the Elk River crayfish include moderately sized, stable stream channels with riffles, runs, or pools that have some current and low levels of sedimentation; unembedded stream substrates that have larger particle sizes and provide instream cover; and healthy riparian and instream characteristics (e.g., adequate riparian cover to moderate temperature and sedimentation, appropriate prey resources, and sufficient water chemistry).

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Elk River crayfish, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. The primary stressors affecting the Elk River crayfish's biological status include changes to: (1) the species' population demographics (i.e., distribution and abundance, and connectivity); (2) the quality of instream breeding, feeding, and sheltering features (i.e., level of sedimentation, which is affected by flooding and energy development activities); (3) water quality; and (4) riparian conditions. While some currently suitable habitat will become less suitable and two HUC 10 watersheds are projected to become extirpated within the foreseeable future, the species' distribution and abundance within remaining higher quality habitat that support its needs ensures that the Elk River crayfish will persist.

Our review of the best available scientific and commercial information indicates that the Elk River crayfish does not meet the definition of an endangered species or a threatened species in accordance with sections 3(6) and 3(20) of the Act. Therefore, we find that listing the Elk River crayfish is not warranted at this time. A detailed discussion of the basis for this finding can be found in the Elk River crayfish's species assessment and other supporting documents (see **ADDRESSES**, above).

Rattlesnake-master Borer Moth

Previous Federal Actions

On June 25, 2007, we received a petition, dated June 18, 2007, from Forest Guardians (now WildEarth Guardians), requesting that the rattlesnake-master borer moth be listed as either endangered or threatened under the Act with critical habitat. On

December 16, 2009, we published a 90-day finding in the *Federal Register* (74 FR 66866), concluding that the petition presented substantial scientific or commercial information indicating that listing may be warranted. On August 14, 2013, we published a 12-month finding in the *Federal Register* (78 FR 49422) in which we stated that listing the rattlesnake-master borer moth as endangered or threatened was warranted. However, listing was precluded at that time by higher priority actions, and the species was added to the candidate species list. The species was assigned a listing priority number of 8, because it faced moderate to low magnitude, imminent threats, and is a valid taxon at the species level. From 2014 through 2019, we addressed the status of the rattlesnake-master borer moth in our candidate notice of review, with the determination that listing was warranted but precluded (see 79 FR 72450, December 5, 2014; 80 FR 80584, December 24, 2015; 81 FR 87246, December 2, 2016; 84 FR 54732, October 10, 2019).

Summary of Finding

The rattlesnake-master borer moth is a small, purple-brown moth, measuring 3.5–4.8 centimeters (1.4–1.9 inches) with small, scattered yellow and white spots. The species is currently found in Arkansas, Illinois, Kansas, Kentucky, Missouri, and Oklahoma, and is considered extirpated from Iowa and North Carolina. At the time of the 12-month finding in 2013, 16 extant populations of the rattlesnake-master borer moth were known. Subsequently, the species has been documented in 55 sites or populations.

The rattlesnake-master borer moth inhabits primarily high-quality remnant prairies and also some grassland, savanna, barrens, glades, and open woodland habitats. The only host plant for the moth is the rattlesnake master (*Eryngium yuccifolium*), on

which the moth larvae develop and eggs overwinter. The species' habitat requires periodic disturbance to prevent woody encroachment.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the rattlesnake-master borer moth, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. The primary stressors affecting the rattlesnake-master borer moth's biological status include management actions (e.g., grazing, mowing, prescribed fire), the natural fire regime, and habitat loss and fragmentation. We also assessed impacts to the rattlesnake-master borer moth from the effects of climate change. Currently, the rattlesnake-master borer moth has multiple resilient populations across the breadth of its environmental variation. In the future, we anticipate a maximum of 12 small populations may be lost. However, the overall impact to the species would be low, as the 17 highly resilient populations, representing 89 percent of the acreage for the species, are expected to remain, and no loss of range is predicted to occur. We anticipate the rattlesnake-master borer moth to maintain adequate resiliency, redundancy, and representation to withstand catastrophic events and adapt to changing conditions.

Our review of the best available scientific and commercial information indicates that the rattlesnake-master borer moth does not meet the definition of an endangered species or a threatened species in accordance with sections 3(6) and 3(20) of the Act. Therefore, we find that listing the rattlesnake-master borer moth is not warranted at this time. A detailed discussion of the basis for this finding can be found in the rattlesnake-

master borer moth species assessment and other supporting documents
(see **ADDRESSES**, above).

Northern Virginia Well Amphipod

Previous Federal Actions

We initiated a discretionary status review for the northern Virginia well amphipod in fiscal year 2018. The species had previously been petitioned in 2001, with two other invertebrates, but we found the petition to be not substantial in 2007 (72 FR 51766; September 11, 2007). Since 2001, the species has been covered under the Department of Defense U.S. Army's Fort Belvoir Installation's (Fort Belvoir) integrated natural resources management plan (INRMP).

Summary of Finding

The northern Virginia well amphipod is a small (7.0 millimeter (0.28 inch) or less) groundwater aquifer crustacean and is currently known from a single location on Fort Belvoir in Fairfax County, Virginia. It was historically known from two other locations in Fairfax County. This location consists of a seep/spring within a wooded ravine where groundwater discharges from the subterranean habitat after high precipitation events.

Detailed hydrogeological studies suggest that the amphipod may inhabit 'macropores' (cavities and channels within the ravine wall formed when sandy substrates erode while surrounding clay substrate persists) and/or a deep (i.e., non-surficial) aquifer characterized by a unique chemical signature of high conductivity, high dissolved solids, and low organic content. The diet, water quality tolerances, and behavioral traits of the amphipod have not been documented. We infer, based on general principles of

conservation biology, general information about other groundwater species, and local information from where the amphipods have been observed, that the amphipod requires sufficient “space” in which to find food and to reproduce, and that this “space” may equate to either the macropores of the seep/spring areas, the sediments of the deeper aquifer, or both. Although we do not know the specific needs of the northern Virginia well amphipod, we infer that a species generally requires a stable or positive population growth rate to remain healthy. We do not know the species’ population size or trend, but instead rely on the best available habitat parameters as a surrogate for population and species health.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the northern Virginia well amphipod, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. The primary stressors affecting the northern Virginia well amphipod’s biological status include changes to groundwater quality and quantity and the extent of impervious cover in likely recharge zones, which affects the quality and quantity of water entering aquifers. We also evaluated the implementation of conservation actions, primarily Fort Belvoir’s INRMP, which includes the amphipod as a covered species. We conclude that the species’ subsurface needs are currently being met by suitable surface habitat conditions and lack of substantial impacts to water quality, and that those conditions will continue to persist within the foreseeable future.

Our review of the best available scientific and commercial information indicates that the northern Virginia well amphipod does not meet the definition of an endangered

species or a threatened species in accordance with sections 3(6) and 3(20) of the Act. Therefore, we find that listing the northern Virginia well amphipod is not warranted at this time. A detailed discussion of the basis for this finding can be found in the northern Virginia well amphipod's species assessment and other supporting documents (see **ADDRESSES**, above).

New Information

We request that you submit any new information concerning the taxonomy of, biology of, ecology of, status of, or stressors to the Upper Missouri River DPS of Arctic grayling, Elk River crayfish, rattlesnake-master borer moth, and northern Virginia well amphipod to the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**, whenever it becomes available. New information will help us monitor these species and make appropriate decisions about their conservation and status. We encourage local agencies and stakeholders to continue cooperative monitoring and conservation efforts.

References Cited

A list of the references cited in the petition finding are available on the Internet at <http://www.regulations.gov> in the appropriate docket provided above in **ADDRESSES** and upon request from the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**.

Authors

The primary authors of this document are the staff members of the Species Assessment Team, Ecological Services Program.

Authority

The authority for this action is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Aurelia Skipwith

Director, U.S. Fish and Wildlife Service.

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